

## **Appendix 9:**

# **DR1491VA & DR1544VA Mitigation Strategies**

# **Hazard Mitigation Strategy**

**FEMA-1491-DR-VA**

HURRICANE ISABEL



**FEMA**



## Purpose of the Mitigation Strategy

This report outlines a strategy to identify and implement mitigation opportunities following the disaster declaration for **FEMA-1491-DR-VA, Hurricane Isabel**. It also provides the framework for implementing long-term cost-effective solutions to minimize future disaster damages statewide. The strategy has been designed to be congruent with the State Hazard Mitigation Plan, and will serve to:

- Describe operating procedures for mitigation staff within the Disaster Field Office;
- Identify opportunities to achieve mitigation efforts within affected communities; and
- Document these efforts so they may be shared and enhanced in future disasters.

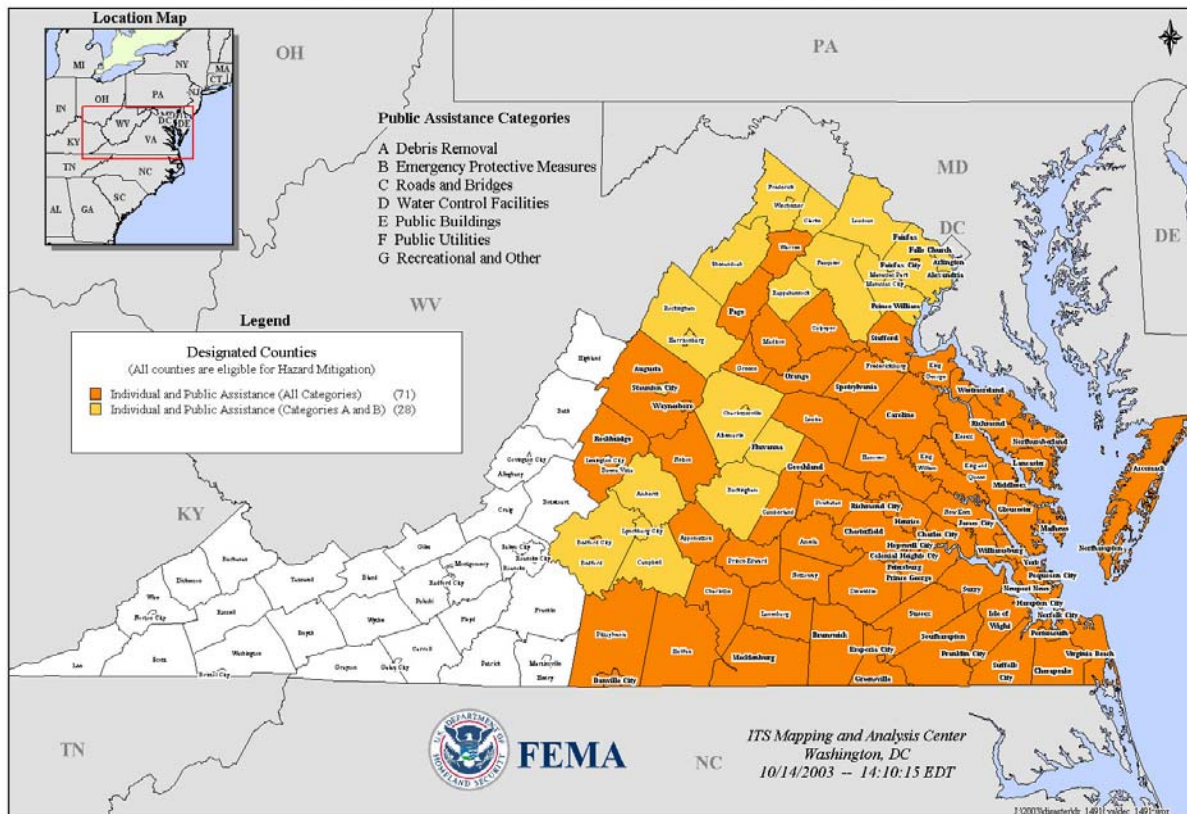
This document is a multi-agency effort. For this disaster, the Virginia Department of Emergency Management (VDEM) and the Federal Emergency Management Agency (FEMA) brought together the State Hazard Mitigation Committee to determine strategies and priorities for mitigation within this disaster. The agencies participating on the State Hazard Mitigation Committee for this strategy development were:

1. Department of Conservation & Recreation
  - a. Division of Dam Safety and Floodplain Management
  - b. Division of State Parks
  - c. Division of Soil and Water Conservation
2. Department of Transportation
3. Department of Game and Inland Fisheries
4. Virginia Marine Resource Commission
5. Department of Environmental Quality
6. Department of Forestry
7. State Corporation Commission
  - Property and Casualty Division
8. Department of Housing and Community Development

## Description of the Event

On September 18, 2003, Hurricane Isabel entered Virginia after making landfall along North Carolina's Outer Banks. The Commonwealth of Virginia experienced wind gusts near 100 mph and tropical storm force winds for 29 hours. The hurricane produced storm surge of 5 to 8 feet along the Atlantic coast and in the Chesapeake Bay, with rainfall totals between 2 to 11 inches along its track. Damages due to wind, rain, and storm surge resulted in flooding, electrical outages, debris, transportation interruption, and damaged homes and businesses. At the height of the incident approximately 6,000 residents were housed in 134 shelters and curfews were imposed in many jurisdictions. Further damages occurred when a series of thunderstorms and tornados came through many of the designated areas in the southeast portion of Virginia on September 23. Governor Mark R. Warner declared a State of Emergency in the Commonwealth on September 15, 2003. On September 18, 2003, Governor Warner requested and received a Major Presidential Disaster Declaration (FEMA-1491-DR-VA). FEMA closed the incident period effective October 1, 2003. A total of 30 deaths resulting from this incident were confirmed.

### FEMA - 1491 - DR, Virginia Disaster Declaration as of 10/06/2003



# **Virginia's Mitigation Goal and Vision**

Virginia's Hazard Mitigation Plan (Emergency Operations Plan, Volume 6, approved July, 2001) was developed in compliance with the requirements of Section 409 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (as amended Public Law 93-288 and 106-390). The State Mitigation Planning Committee, consisting of individuals from different state, federal and private sectors assisted with the development of this Plan. The mitigation goal and vision, included below, lays the foundation for building the capacity to resist future disasters throughout the Commonwealth.

## **Hazard Mitigation Goal**

To reduce the impacts of natural hazards on people, property and communities throughout the state.

## **Hazard Mitigation Vision**

The Commonwealth of Virginia is less vulnerable to the impacts of natural disasters as a result of the coordinated actions undertaken by state agencies and local political subdivisions. The impacts of hazards will be reduced when:

- Communities and people who are at-risk become aware of the natural hazards that may impact them and understand what they can do to become more resistant to disasters;
- Program and planning activities and technical support are available to help minimize the exposure of private and public buildings and infrastructure to the effects of natural hazards; and
- Regulations and incentives are available to encourage safer development and redevelopment of private and public buildings and infrastructure.

# **Hazard Mitigation Strategy**

## **FEMA-1491-DR-VA**

This strategy defines the federal, state, and local work tasks, and identifies mitigation issues and opportunities for the disaster incident response and recovery period. It also provides direction for implementing general operating procedures for mitigation within the Disaster Field Office (DFO).

The following objectives are intended to capture major areas for action during the recovery period for the federal and state agencies and local jurisdictions in the declared area, while laying the groundwork for future long-term mitigation efforts statewide.

- 1. Identify communities/regions interested in Section 322 mitigation planning and provide technical assistance for development of planning applications for the Hazard Mitigation Grant Program (HMGP).*
- 2. Identify communities (statewide) interested in carrying out mitigation projects and provide technical assistance in the development of projects applications for the Hazard Mitigation Grant Program (HMGP).*
- 3. Support Public Assistance Section 406 Mitigation*
- 4. Determine target communities for developing revised flood hazard maps.*
- 5. Educate the Commonwealth and its citizenry about mitigation and its benefit to life and property when implemented correctly.*
- 6. Review declared communities' National Flood Insurance Program (NFIP) compliance and provide technical and planning assistance as needed.*
- 7. Promote the NFIP to non-participating communities.*
- 8. Coordinate with the State Corporation Commission, Bureau of Insurance, to require and promote continuing education for Virginia's insurance agents on the NFIP and its related insurance coverages.*
- 9. Document mitigation success stories and develop methods for localities to continue documentation after the closeout of this disaster event.*
- 10. Aid in the Commonwealth's effort of long term recovery/restoration planning.*
- 11. Work with the localities/regions in which mitigation planning is occurring to assist their planning efforts through provision of planning guidance, technical assistance and mitigation planning training as needed or requested.*
- 12. Provide technical training workshops to building officials, consulting firms, contractors and other interested parties on the Virginia Floodplain Management Program, coastal construction methods, manufactured home construction and other mitigative construction techniques to reduce damage from flood, hurricane and winds.*

**Objective 1:**

**Identify communities/regions interested in Section 322 mitigation planning and provide technical assistance for development of planning applications for the Hazard Mitigation Grant Program (HMGP).**

*Encourage local communities and regions to participate in grant programs that will in mitigation planning efforts to identify hazards, risks, vulnerabilities and to strategize possible resolution to these vulnerabilities.*

**Background**

The Disaster Mitigation Act of 2000 set a deadline of November 1, 2004 for the development of local hazard mitigation plans across the United States. In the Commonwealth of Virginia, prior funding for the development of these plans has been sufficient only for the development of a minimum number of plans. Efforts are needed to encourage the remaining localities in Virginia to move forward on this planning process.

**Actions:**

1. Develop a comprehensive list of localities within the Commonwealth of Virginia that are required to develop or participate in the development of a hazard mitigation plan (Section 322).
2. Identify those groups of localities that may be able to develop multi-jurisdictional plans, and those localities that may need to develop their own plans.
3. Identify the primary contacts for each of these planning groups or localities.
4. Call these contacts to provide information about Section 322 planning, the possible availability of funding from this event, the technical and planning assistance available from VDEM and FEMA, and then encourage these contacts to move forward on this planning effort.
5. Provide an HMGP application package to the localities and regions interested in applying for funding and provide training and support during their application process.
6. Work with FEMA Region III to provide an expedited review of these applications.
7. Provide assistance to the localities receiving HMGP funding to administer the grant and implement the mitigation planning process.

*Lead agencies: VDEM and FEMA*

**Objective 2:**

**Identify communities (statewide) interested in carrying out mitigation projects and provide technical assistance in the development of project applications for the Hazard Mitigation Grant Program (HMGP).**

*Encourage local communities to participate in grant programs that will reduce the risk of loss to life, property damage and the resultant suffering from future disasters.*

**Background**

HMGP can be used to fund cost-effective projects that will protect public and private property. The project must fit into the overall mitigation strategy and priorities of the

Commonwealth. Applicants for mitigation projects will be contacted by the Commonwealth within the first two months of the disaster through HMGP applicant's briefings.

**Actions:**

1. Reaffirm or establish priorities for categories of mitigation projects and for participation in the HMGP. Funds will be offered first (within the following priorities) to jurisdictions within the declared localities/regions within this Presidential Disaster Declaration. Projects will be prioritized in the following order:

A. Planning Funds (7%)

1. State All Hazard Mitigation Plan
2. Local All Hazard Mitigation Plans
  - a. Designated Communities
  - b. Regional/Multi-Jurisdiction Plans
  - c. Regions/Localities Ready to Plan
  - d. Regions/Localities with Development Pressures or High Density.

B. Initiative Funds (5%)

1. Awareness/Training
  - a. Mitigation Public
  - b. Disaster Preparedness
2. Geographic Information System software, hardware, and data acquisition that supports mitigation.
3. Equipment and systems for the purpose of warning residents and officials of impending hazard events.
4. Other activities, clearly falling under the role of mitigation, for which the benefit-cost ratio is less than 1:1 or is clearly immeasurable.

C. Project Funds\*

1. Residential Structures
  - a. Acquisition/Demolition
    1. Repetitive Loss\*\*
    2. Primary Residence
    3. Residential Rental Property
  - b. Elevation
    1. Repetitive Loss\*\*
    2. Primary Residence
    3. Residential Rental Property
  - c. Relocation
    1. Repetitive Loss\*\*
    2. Primary Residence Local
2. Government Structures
  - a. Acquisition/Demolition
    1. Repetitive Loss\*\*
    2. Primary Location
  - b. Retrofit



1. Repetitive Loss\*\*
  2. Primary Location
  3. Commercial Structures
    - a. Acquisition/Demolition
      - Repetitive Loss\*\*
    - b. Retrofit
      - Repetitive Loss\*\*
- Lead agencies: VDEM, DCR, and FEMA*

\* *If available funds are less than requested funds, funds will be made available to projects in above order. Projects within the same category will be ranked by Benefit-Cost.*

\*\* *Repetitive Loss will be defined as structures with 2 or more insured or uninsured losses to insurable space of over \$1,000 since 1978.*

2. Ensure that the appropriate officials in all jurisdictions receive HMGP informational materials and pre-applications. Conduct eight regional state- sponsored HMGP applicant's briefings within the declared area.

*Lead agencies: VDEM*

3. Provide any required technical assistance to communities for HMGP project and application development, including benefit-cost analysis, environmental, engineering and historical considerations.

*Lead agencies: VDEM and FEMA.*

### **Objective 3:** **Support Public Assistance Section 406 Mitigation.**

*Support the Public Assistance Section in identifying, scoping, reviewing and implementing 406 Mitigation activities.*

### **Background**

Section 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (P.L. 93-288, as amended) authorizes FEMA to award grants to State and local governments and private nonprofit organizations to repair, restore, reconstruct or replace facilities damaged or destroyed by a major disaster. Section 406 of the Stafford Act also gives FEMA discretionary authority to fund mitigation measures in conjunction with the repair of damaged facilities. "Mitigation measures" are actions that will reduce future disaster damages.

### **Actions:**

1. Organize and provide FIRM maps (digital or otherwise) to the Public Assistance Section.  
*Lead agencies: DCR and FEMA.*
2. Provide Hazard Mitigation 406 Specialists to Public Assistance to staff and support 406 Mitigation efforts. *Lead agency: FEMA.*

**Objective 4:****Determine Target Communities for Developing Revised Flood Hazard Maps.**

*Use various data collected from Preliminary and Secondary Damage Assessments performed by the Hazard Mitigation Technical Services Division along with other analysis and reports generated by the Hazard Mitigation Branch to evaluate the need for revising flood maps in the affected communities.*

**Background:**

Due to the extensive nature of the flooding in Virginia as a result of the storm, there have been reports of flood levels in some communities that exceeded any previous levels of flooding recalled by local officials. This includes storm surges that were encountered in communities on the Chesapeake Bay (City of Pocomoke), the James River (Surry, Isle of Wight, York, County), and the Potomac River (Stafford County). Flash flooding was encountered in Rockbridge County above levels previously encountered that may make Hurricane Isabel the storm of record in that county. Based on preliminary evidence, several communities have flood hazard maps in need of revision. This can be due to severe shoreline erosion which changes the coastal high hazard flood zone (V-Zone) further inland, new storm surge and wind effect data encountered further inland from what previous models indicated, or new high water marks along riverine environments.

**Actions:**

1. Review data collected from Preliminary and Secondary Damage Assessment Reports to locate areas of high risk for flooding.
2. Evaluate the data collected by the ACOE, USGS and others regarding high water marks, existing hydrologic data and modifications to shorelines and channels to compare it to the existing data provided in the current flood insurance studies and the Flood Insurance Rate Maps (FIRMs). Assess any potential problems with existing flood maps based on the current level of mapping available on the FIRMs.
3. Collect any data and information pertinent to map revisions from the local officials as appropriate.
4. As appropriate, compile all relevant data to support a map revision process in support of flood hazard reduction in the affected disaster communities.
5. Develop a case supporting mapping revisions that is fully supportable. Present it to the Federal Coordinating Officer and State Coordinating Officer as a request to perform a map revision initiative as part of the disaster recovery efforts.

*Lead Agencies: FEMA, DCR, USGS and USACOE*

**Objective 5:****Educate the Commonwealth and its citizenry about mitigation and its benefit to life and property when implemented correctly.****Background:**

Mitigation is not just a post-disaster activity. Mitigation can be done at any point and time through many different means. Mitigation can be as simple as elevating a newly placed air

conditioning unit or as complex as relocating a building. These projects can be done by individuals, neighborhoods, communities, localities or higher. It is imperative for Virginia's citizens to understand the flexibility of mitigation.

**Actions:**

1. Develop and implement a public awareness campaign to depict the function of mitigation throughout the state. *Lead agencies: VDEM and FEMA.*
2. Coordinate with Citizen Corps to incorporate general mitigation suggestions and flood insurance information within Citizen Corps training modules. *Lead agencies: VDEM, DCR, and FEMA.*
3. Develop and implement a Virginia specific education campaign explaining the importance and function of flood insurance coverage. *Lead agencies: DCR, SCC and FEMA*

**Objective 6:**

**Review Declared Communities' National Flood Insurance Program (NFIP) Compliance and Provide Technical and Planning Assistance as Needed.**

*Assist local governments within the affected areas in practicing sound floodplain management to ensure that new and existing development within the 100-year floodplain will be constructed to at least the minimum NFIP standards. The immediate focus is to assist community officials, particularly building officials, in proper structural repair or replacement within the Special Flood Hazard Area (SFHA). Document possible non-compliant structures or development and develop strategies to assist communities in affecting compliance.*

**Background:**

The NFIP was designed to reduce our nation's susceptibility to floods and flood-related hazards. Participation in the NFIP requires that communities adopt and enforce a local floodplain ordinance (including applicable state building codes) that meets or exceeds floodplain management and flood hazard reduction provisions of the NFIP (44 CFR 60). The NFIP community must designate an official that will enforce the ordinance.

**Actions:**

1. Issue a letter to local Building Code Enforcement Officials that addresses their responsibility to enforce the substantial damage provision of the National Flood Insurance Program (NFIP) and the Virginia Uniform Statewide Building Code. The letter will accompany the Hurricane Isabel Disaster Survival kit, comprised of the *Residential Substantial Damage Estimator* CD and other pertinent documents including the community's FIRMs. A letter offering general technical services and support, as well as the HMGP process will be issued concurrently to county and city administrators. *Lead Agencies: DCR and FEMA*
2. Conduct Community Compliance and Mitigation Meetings in communities affected by the disaster to assess current levels of understanding and compliance with the NFIP. *Lead agency: DCR*
3. Contact local building, zoning and planning officials to offer and provide technical assistance relating to substantially damaged structures and NFIP enforcement issues. *Lead agencies: DCR and FEMA.*

4. Initiate an effort with the NFIP Flood Response Office to document and process Increased Cost of Compliance (ICC) claims. Assist community officials and citizens with proper implementation of ICC claims for insured properties that have been substantially damaged. *Lead agencies: DCR and FEMA.*
5. Conduct field assessments in FEMA designated flood hazard areas (SFHAs) of the affected jurisdictions to observe the communities' building and floodplain development practices. Record (written and photographically) possible non-compliant (relative to NFIP requirements) structures. *Lead agencies: DCR and FEMA.*
6. When non-compliant development has been verified, meet with community officials to discuss strategies that will affect compliance of those structures or areas of non-compliance. *Lead agencies: DCR and FEMA.*
7. Reinforce NFIP, Virginia building code and local floodplain management ordinance program requirements in repair and replacement of damaged structures in all communications with local building officials.

#### **Objective 7:**

#### **Promote the NFIP to Non-Participating Communities.**

*Provide the necessary information on the benefits and requirements of the NFIP to communities that are not currently (pre-disaster) participating in the NFIP and encourage them to join.*

#### **Background:**

In some cases, citizens were ineligible to purchase flood insurance because their city, town or county had chosen not to participate in the National Flood Insurance Program.

#### **Actions:**

1. Initiate contact with appropriate community officials in non-participating communities with a letter that states the importance of joining the NFIP to provide benefits such as access to flood insurance and federal disaster assistance to the citizens of the community. The letter will provide them with the necessary information to make an informed decision regarding participation in the NFIP. *Lead agencies: DCR and FEMA.*
2. Make follow-up contacts with the community officials from non-participating communities that a letter was sent to in order to assist them in developing a floodplain ordinance, completing a NFIP application, and preparing a NFIP resolution. *Lead agencies: DCR and FEMA.*
3. Expedite Community Assistance Visits with non-participating communities to fast-track their acceptance into the National Flood Insurance Program. *Lead agencies: DCR and FEMA.*

**Objective 8:**

**Coordinate with the State Corporation Commission, Bureau of Insurance to require and promote continued education for Virginia's insurance agents regarding the National Flood Insurance Program and related coverages.**

*Technical workshops for insurance agents will be offered in the Commonwealth during fall, 2003. The State Corporation Commission consumer hot-line is being used to register complaints or problems with clients regarding all disaster-related insurance claims. This information will be used to further craft and target training and information for insurance agents.*

**Background:**

As in most flooding disasters there are reports from citizens that their insurance agents informed them at some point in time that they were ineligible for flood insurance. In almost every case, the information was incorrect. Due to wide-spread misinformation, not only in the insurance industry but also in the building trades, there is a significant need to educate insurance agents, adjusters and industry professionals on the proper application of the NFIP regulations and on floodplain management issues/practices relative to the National Flood Insurance Program.

**Actions:**

1. In cooperation with Rich Sabota, ISO, insurance agent workshops will be targeted within the disaster area in November 2003. *Lead Agencies: DCR and FEMA.*
2. State Corporation Commission Consumer hot-line complaint/problem data will be used to determine short and long-term needs regarding consumer and insurance agent information and education needs. *Lead Agencies: DCR and FEMA.*
3. Legislation to strengthen the continuing education requirements for insurance agents to require periodic NFIP training will be explored. At present, such training is optional for agents but not required. *Lead Agencies: DCR and FEMA.*

**Objective 9:**

**Document mitigation success stories and develop methods for localities to continue documentation after the closeout of this disaster event.**

*Collect current mitigation success stories with respect to Hurricane Isabel. Set up a format and reporting location such that localities can submit success stories as they occur in future federal and non-federal disaster events.*

**Background:**

With continuing pressure on the Commonwealth's and Nation's budgets, it is critical to show that use of mitigation funds (grants or otherwise) are promising investments for the future. Mitigation can take many years to prove its worth, as that the return period of events may be fairly high. When events do occur that show what "might have been," a format in which to record these successes is necessary.

**Actions:**

1. Conduct mitigation damage assessments in declared localities. *Lead agencies: FEMA.*
2. Contact localities that were affected by Hurricane Isabel and have received prior mitigation grant funds through the Commonwealth and FEMA to collect information on known successes within the localities. *Lead agencies: VDEM and FEMA*
3. Survey areas/properties that were part of prior mitigation funding and determine what impacts, if any, were avoided during this disaster. *Lead agencies: FEMA*
4. Prepare “Mitigation Success Stories” in a publication format.
  - a. As many short format successes as can be collected.
  - b. Several long format successes.*Lead agencies: VDEM and FEMA*
5. Develop an internet-based mitigation success story collection database that can be accessed and updated by local jurisdictions and state agencies. *Lead agencies: VDEM and FEMA*

**Objective 10:****Aid in the Commonwealth’s effort of long term recovery/restoration planning.**

*Some localities in Virginia have suffered major damage in Hurricane Isabel disaster. These communities have had damage that has put a strain on the resources of the residents and local government. Identify these localities and work on developing a strategy to restore the social stability of the area while at the same time restoring the community in a way that reduces the vulnerability of the community to disaster damage.*

**Background:**

After a disaster, jurisdictions in Virginia face numerous issues and it is the purpose of recovery and restoration planning to coordinate the various resources that become available to restore the disaster area in a way that prevents reoccurrence of similar damage.

**Actions:**

1. Support the development of the Commonwealth’s long-term recovery plan. *Lead agencies: VDEM and FEMA*
2. Assess the individual communities that would benefit from a long-term recovery plan. *Lead agencies: VDEM and FEMA*
3. Contact targeted communities and determine if they would become a partner of the Commonwealth and federal agencies in preparing a long term recovery strategy. *Lead agencies: VDEM and FEMA*
4. Develop a strategy and coordinate available resources to support the strategy. *Lead agencies: VDEM and FEMA*

**Objective 11:**

**Work with the localities/regions in which mitigation planning is occurring to assist their planning efforts through provision of planning guidance, technical assistance and mitigation planning training as needed or requested.**

## **Background**

VDEM is working to enlist all localities within the Commonwealth of Virginia in the mitigation planning process described by the Disaster Mitigation Act of 2000. There are several sources from which these localities can receive guidance on this process, many of them developed and published by FEMA. However, VDEM has the primary responsibility to these localities to provide Commonwealth-specific technical and planning assistance and guidance, as well as training in the mitigation planning process for these localities. It is important that VDEM develop consistent guidance documentation so that every locality across the Commonwealth can begin their planning with the same understanding of this process.

### **Actions:**

1. VDEM and FEMA mitigation staff will develop guidance documentation for Virginia localities consistent with the DMA2K regulations and the Code of Virginia, as well as addressing issues raised by those localities developing their mitigation plans.
2. VDEM will incorporate this information into the existing Local Mitigation Planning Workshops as needed and available.
4. VDEM will schedule mitigation planning training using the updated Local Mitigation Planning Workshops as needed or requested for localities developing their plans. This training schedule will be based on identified local needs or requests for this training and VDEM Training staff and funding availability.
5. VDEM (and FEMA staff, as needed or available) will provide ongoing technical and planning assistance to these localities on a regular and as-needed basis.

*Lead agencies: VDEM and FEMA*

### **Objective 12:**

**Provide technical training workshops to building officials, consulting firms, contractors and other interested parties on the Virginia Floodplain Management Program, coastal construction methods, manufactured home construction and other mitigative construction techniques to reduce damage from flood, hurricane and winds. Educate communities and other organizations on the benefits of the NFIP.**

*A local floodplain management program is a combination of a local floodplain management ordinance complimented by enforcement of the local building code. Local government staff have indicated on surveys that technical workshops are an especially effective mechanism for them to stay current on technical and regulatory aspects of the flood insurance program. Provide educational materials and training to community officials and citizens on the NFIP and proper floodplain management.*

### **Background:**

The Virginia Floodplain Managers Association and the Virginia Floodplain Management Program have successfully conducted floodplain management workshops throughout the Commonwealth in the past. Five workshops are planned for fall, 2003 and early 2004, and the extensive damage from Hurricane Isabel may warrant additional sessions.

## **Actions:**

1. Evaluate the need for training or workshops for the Residential Substantial Damage Estimator (RSDE) based on data collection from the Hazard Mitigation Technical Services Teams and upon requests by local building officials. Provide the appropriate training to local officials as appropriate and as needed including in-field assistance as needed. Work with FEMA to facilitate contracted services for this task if the need is beyond the capability of state/federal DFO staff. *Lead agencies: DCR and FEMA.*
2. Review the need for NFIP and floodplain management-related workshops (i.e., Agents and Lenders Workshops, Building Code Officials, volunteer organizations, etc.) and deliver as appropriate. *Lead agencies: DCR and FEMA.*
3. Conduct scheduled Basic and Advanced Floodplain Management Workshops within the Commonwealth: *Lead agencies: DCR, VDEM and FEMA.*
  - a. Advanced Workshop – *Determining Elevations in A Zones*  
October 10, 2003 – Richmond
  - b. Basic Floodplain Management  
October 22, 2003
  - c. Basic Floodplain Management  
November 6, 2003 Farmville
  - d. Basic Floodplain Management  
November 19, 2003 Fredericksburg
  - e. Coastal Floodplain Management  
February 11 and 12, 2004 – Norfolk
4. Assess the need for advanced workshops such as coastal construction, flood proofing for commercial development and installation of manufactured homes. Conduct workshops as needed targeted to specific audiences and geographic areas. *Lead agencies: DCR, VDEM and FEMA.*
5. Work with the communities that were impacted during this disaster to promote the importance of sound land use practices in flood hazard areas and the beneficial aspects of the natural floodplain. *Lead agencies: DCR, VDEM and FEMA.*
6. Develop from the educational *Virginia Disaster Resistance Library* a modified technical CD for distribution to planning and zoning officials, building officials, engineers, consultants, community college and vocational education programs and others for use in administering local floodplain management programs. This CD would include technical bulletins, manuals, model ordinances and other tools necessary to support NFIP compliance and pro-active floodplain management. *Lead agencies: VDEM, VDCR, FEMA.*
7. Develop a series of power point educational programs to use in promotion of mitigation methods. Possible topics include pro-active local government programs through ordinances, building codes and comprehensive planning; construction methods to reduce damages from hurricane, flood and wind; a citizen's guide to hurricane preparedness; 322 planning in Virginia; and pre-disaster mitigation projects. *Lead agencies: VDEM, VDCR, FEMA.*



## Conclusion

The strategy described herein should be considered a general guide in the development and implementation of mitigation actions in FEMA-DR-1491-VA. The strategy outlines the initiatives to move towards the goal of minimizing the risk to human life, reducing potential future damages and creating disaster resistant communities. In order to determine specific choices on mitigation activities, relevant data in the affected area must be thoroughly analyzed to identify a range of possible mitigation activities. The analysis will also be invaluable in the development of the region's hazard mitigation plans.

By addressing these initiatives, the Commonwealth of Virginia and its Federal partners will be better able to assist the public and to break the damage-repair-damage cycle through effective mitigation measures.

Signed:

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Michael M. Cline  
State Coordinating Officer

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Louis Botta  
Federal Coordinating Officer



# **Hazard Mitigation Strategy**

**FEMA-1544-DR-VA**

TROPICAL DEPRESSION GASTON



**FEMA**



## Purpose of the Mitigation Strategy

This report outlines a strategy to identify and implement mitigation opportunities following the disaster declaration for **FEMA-1544-DR-VA, Tropical Depression Gaston**. It also provides the framework for implementing long-term cost-effective solutions to minimize future disaster damages statewide. The strategy has been designed to be congruent with the State Hazard Mitigation Plan, and will serve to:

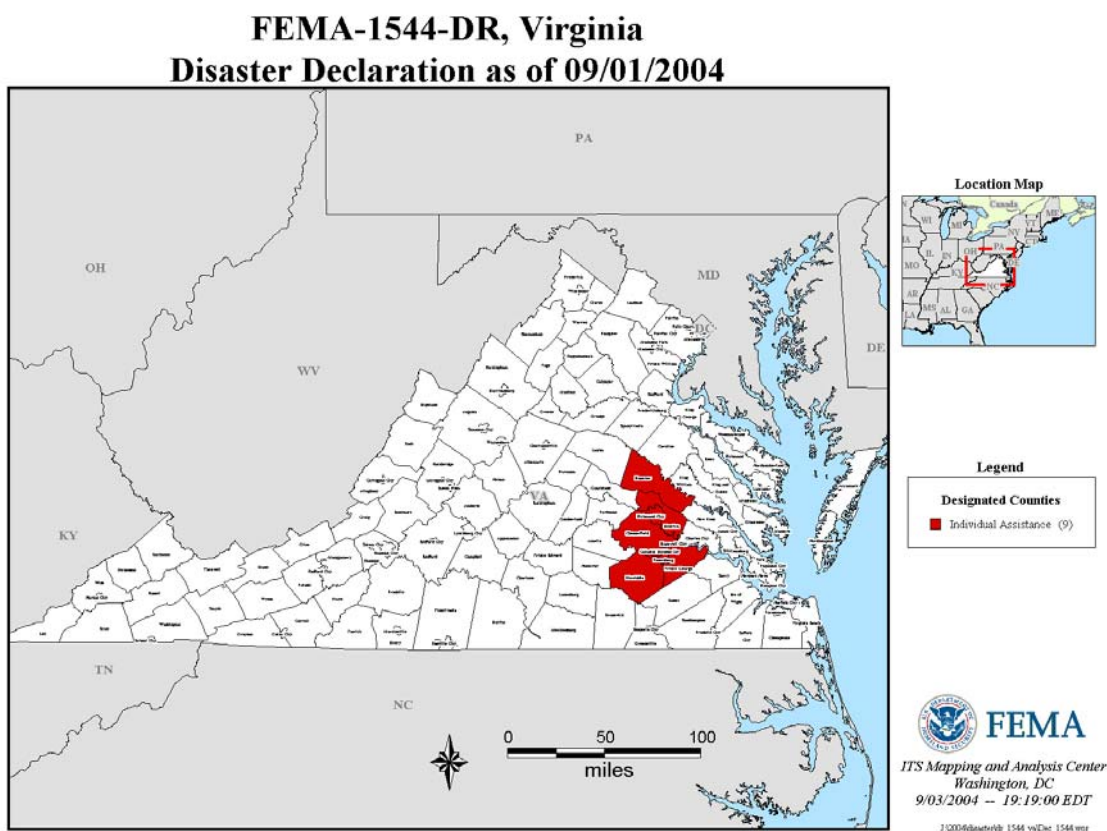
- Describe operating procedures for mitigation staff within the Disaster Field Office;
- Identify opportunities to achieve mitigation efforts within affected communities; and
- Document these efforts so they may be shared and enhanced in future disasters.

This document is a multi-agency effort. For this disaster, the Virginia Department of Emergency Management (VDEM) and the Federal Emergency Management Agency (FEMA) brought together the State Hazard Mitigation Committee to determine strategies and priorities for mitigation within this disaster. The agencies participating on the State Hazard Mitigation Committee for this strategy development were:

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  - a. Division of Dam Safety and Floodplain Management
  - b. Division of State Parks
  - c. Division of Soil and Water Conservation
2. Department of Transportation
3. Department of Game and Inland Fisheries
4. Virginia Marine Resource Commission
5. Department of Environmental Quality
6. Department of Forestry
7. State Corporation Commission
  - Property and Casualty Division
8. Department of Housing and Community Development

## Description of the Event

Downgraded from a tropical storm, Gaston moved into Virginia from the south during the morning of Monday, August 30, 2004. Although forecasts called for accumulations of 1"-3" in Central Virginia, the system slowed down over the Richmond metropolitan area and brought as much as 14" of rain in some areas. In the cities of Richmond, Hopewell, Colonial Heights, and Petersburg and the counties of Chesterfield, Dinwiddie, Henrico, Hanover, and Prince George, homes, apartments, and businesses in low-lying areas were flooded and many streets were impassable due to severe damage. The Office of the Chief Medical Examiner confirmed nine deaths directly linked to Tropical Depression Gaston.



# **Virginia's Mitigation Goal and Vision**

At this time, the Mitigation Plan has been revised to meet the requirements of Section 322 (The Disaster Mitigation Act of 2000). It has not yet been approved by FEMA, but the plan is still in good standing for compliance with the requirements of Section 409 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (as amended Public Law 93-288 and 106-390). The State Mitigation Planning Committee, consisting of individuals from different state, federal and private sectors assisted with the development of this Plan. The mitigation goal and vision, included below, lays the foundation for building the capacity to resist future disasters throughout the Commonwealth.

## **Hazard Mitigation Vision**

*It is one of the Commonwealth's visions to reduce the impacts of hazards on human, economic and natural resources throughout the state.*

## **Hazard Mitigation Goals**

- 1. Identify and implement physical projects that will directly reduce impacts from hazards.*
- 2. Incorporate mitigation concepts and objectives into existing and future policies, plans, regulations and laws in the Commonwealth.*
- 3. Build capacity with information and data development to refine hazard identification and assessment, mitigation targeting and funding identification.*
- 4. Through education and training, increase awareness of hazards and potential mitigation strategies.*

# **Hazard Mitigation Strategy**

## **FEMA-1544-DR-VA**

This strategy defines the federal, state, and local work tasks, and identifies mitigation issues and opportunities for the disaster incident response and recovery period. It also provides direction for implementing general operating procedures for mitigation within the Disaster Field Office (DFO).

The following objectives are intended to capture major areas for action during the recovery period for the federal and state agencies and local jurisdictions in the declared area, while laying the groundwork for future long-term mitigation efforts statewide.

- 1. Provide technical training workshops to building officials, consulting firms, contractors and other interested parties on the Virginia Floodplain Management Program, coastal construction methods, manufactured home construction and other mitigative construction techniques to reduce damage from flood, hurricane and winds. Educate communities and other organizations on the benefits of the NFIP.*
- 2. Support the recovery, reconstruction and mitigation of those flood-damaged areas through technical assistance.*
- 3. Educate the Commonwealth and its citizenry about mitigation and its benefit to life and property when implemented correctly.*
- 4. Identify communities (statewide) interested in carrying out mitigation projects and provide technical assistance in the development of project applications for the Hazard Mitigation Grant Program (HMGP).*
- 5. Use the Joint Field Office Mitigation Strategy implementation as an opportunity to train new NFIP and VDEM mitigation staff.*

**Objective 1:**

**Provide technical training workshops to building officials, consulting firms, contractors and other interested parties on the Virginia Floodplain Management Program, coastal construction methods, manufactured home construction and other mitigative construction techniques to reduce damage from flood, hurricane and winds. Educate communities and other organizations on the benefits of the NFIP.**

*A local floodplain management program is a combination of a local floodplain management ordinance complimented by enforcement of the local building code. Local government staff have indicated on surveys that technical workshops are an especially effective mechanism for them to stay current on technical and regulatory aspects of the flood insurance program. Provide educational materials and training to community officials and citizens on the NFIP and proper floodplain management.*

**Actions:**

1. Conduct scheduled Basic and Advanced Floodplain Management Workshops within the Commonwealth
  - a. *Lead agencies: DCR, VDEM, Virginia Floodplain Managers Association and FEMA*
  - b. *Contact: Deborah Flipppo, Engineering Concepts*
  - c. *JFO Support: Marketing and Speakers (Mills and Dunn)*

**Objective 2:**

**Support the recovery, reconstruction and mitigation of those flood-damaged areas through technical assistance.**

*To best support the recovery of those areas damages, it is important to utilize all possible new technologies to aid in decision-making for governments, business owners, homeowners, and renters.*

**Actions:**

1. Develop hydrologic and hydraulic model for the August 30, 2004 flooding event at the
  - Bryant Park (I-64 and I-95) Interchange,
  - Upper Shockoe Valley through Shockoe Bottom to the City of Richmond floodwall, and
  - Falling Creek Reservoir or Swift Creek Damthat can be depicted graphically to support recovery and mitigation.
  - a. *Lead agencies: FEMA, VDEM, USGS, USACE, DCR-NFIP*
  - b. *Contact: NOAA- NWS, Bill Sammler; WTVR Channel 6 (for live video); USGS, Mark Bennett; VDEM, Steve Billcheck*
  - c. *JFO Support: Hazard Mitigation Technical Assistance Program*
2. Stabilize landslides in the Church Hill (City of Richmond) and other declared jurisdictions through provision of technical assistance.
  - a. *Lead agencies: DCR and FEMA*

- b. *Contact: Robin Sottir and Associates, Atlanta, GA (for special hire); DCR Richmond Region E & S Specialists; City of Richmond Building Official; City of Richmond Geo-tech Engineer/Landslide Specialist (for special hire); Virginia Tech, CGIT; Michael Vojta, VDEM; City of Richmond GIS Specialist*
  - c. *JFO Support: HMTAP*
- 3. Improve delivery of the Department of Conservation and Recreation Dam Safety Program to DR-1544 impacted areas to stabilize and repair all impacted impoundment structures.
  - a. *Lead agencies: DCR*
  - b. *Contact: none*
  - c. *JFO Support: none*

### **Objective 3:**

**Educate the Commonwealth and its citizenry about mitigation and its benefit to life and property when implemented correctly.**

*Mitigation is not just a post-disaster activity. Mitigation can be done at any point and time through many different means. Mitigation can be as simple as elevating a newly placed air conditioning unit or as complex as relocating a building. These projects can be done by individuals, neighborhoods, communities, localities or higher. It is imperative for Virginia's citizens to understand the flexibility of mitigation.*

### **Actions:**

- 1. Conduct consumer workshops at local hardware and home improvement stores.
  - a. *Lead agencies: VDEM and FEMA*
  - b. *Contact: Nancy Holsinger (for local hire)*
  - c. *JFO Support: Marketing, Staffing, and Creation of Tip Sheets*
- 2. In partnership with Shockoe Bottom businesses and business associations, conduct mitigation "how-to" workshops for business owners, building and maintenance code officials, and contractors on non-residential and residential floodproofing.
  - a. *Lead agencies: VDEM and FEMA.*
  - b. *Contact: Nancy Holsinger (for local hire); Ted VanKirk (Dewberry and Davis); City of Richmond Building Official; The Richmond Omni (free meeting space)*
  - c. *JFO Support: "Six Ways" Publication*
- 3. Work with the impacted communities (homeowners, business owners and renters) that were impacted during this disaster to promote the importance of flood insurance. Target those properties within Zone A and Zone X.
  - a. *Lead agencies: SCC, DCR-NFIP and FEMA*
  - b. *Contact: none*
  - c. *JFO Support: Marketing and NFIP Flyers*

### **Objective 4:**

**Identify communities (statewide) interested in carrying out mitigation projects and provide technical assistance in the development of project applications for the Hazard Mitigation Grant Program (HMGP).**

*Encourage local communities to participate in grant programs that will reduce the risk of loss to life, property damage and the resultant suffering from future disasters.*



## **Actions:**

1. Reaffirm or establish priorities for categories of mitigation projects and for participation in the HMGP. Funds will be offered first (within the following priorities) to jurisdictions within the declared localities/regions within this Presidential Disaster Declaration. Projects will be prioritized in the following order:
  - A. Planning Funds (7%)
    1. Local All Hazard Mitigation Plans Updates
    2. State Mitigation Planning Efforts
  - B. Initiative Funds (5%)
    1. Awareness/Training
      - a. Mitigation Public
      - b. Flood Insurance
    2. Geographic Information System software, hardware, and data acquisition that supports mitigation.
    3. Equipment and systems for the purpose of warning residents and officials of impending hazard events.
    4. Other activities, clearly falling under the role of mitigation, for which the benefit-cost ratio is less than 1:1 or is clearly immeasurable.
  - C. Project Funds\*
    1. Acquisition and Demolition of Manufactured Homes within the floodplain
    2. Non-residential floodproofing
    3. Government Structures
    4. Acquisition/Demolition of Residential Non-Manufactured Homes
      1. Zone A
      2. Repetitive Loss\*\*

*\* If available funds are less than requested funds, funds will be made available to projects in above order. Projects within the same category will be ranked by Benefit-Cost.*

*\*\* Repetitive Loss will be defined as structures with 2 or more insured or uninsured losses to insurable space of over \$1,000 since 1978.*

- a. *Lead agencies: SCC, DCR-NFIP and FEMA*
    - b. *Contact: VDEM – Michelle Pope*
    - c. *JFO Support: Marketing*
  2. Ensure that the appropriate officials in all jurisdictions receive HMGP informational materials and pre-applications. Conduct eight regional state- sponsored HMGP applicant’s briefings within the declared area.
    - a. *Lead agencies: SCC, DCR-NFIP and FEMA*
    - b. *Contact: VDEM – Michelle Pope*
    - c. *JFO Support: Marketing*
  3. Provide any required technical assistance to communities for HMGP project and application development, including benefit-cost analysis, environmental, engineering and historical considerations.
    - a. *Lead agencies: VDEM and FEMA*
    - b. *Contact: VDEM - Michelle Pope*
    - c. *JFO Support: Marketing, Review and Application Management*

**Objective 5:**

**Use the Joint Field Office Mitigation Strategy implementation as an opportunity to train new NFIP and VDEM mitigation staff.**

*Both the National Flood Insurance Program and Virginia Department of Emergency Management have new mitigation staff that need introduction to disaster work. Also, old-timers could use some additional training to hone their mitigation disaster recovery skills.*

**Actions:**

1. Conduct targeted training for Commonwealth disaster mitigation staff.
  - Present the “Managing Development and the National Flood Insurance Program” course.
  - Present training on Floodplain Management Ordinances.
  - Train on the HEC-RAS model through completion of Objective 2.
  - Train on NFIP Community Assistance Visits (CAVs).
  - a. *Lead agencies: FEMA, DCR-NFIP and FEMA*
  - b. *Contact: none*
  - c. *JFO Support: Trainers*

## Conclusion

The strategy described herein should be considered a general guide in the development and implementation of mitigation actions in FEMA-DR-1491-VA. The strategy outlines the initiatives to move towards the goal of minimizing the risk to human life, reducing potential future damages and creating disaster resistant communities. In order to determine specific choices on mitigation activities, relevant data in the affected area must be thoroughly analyzed to identify a range of possible mitigation activities. The analysis will also be invaluable in the development of the region's hazard mitigation plans.

By addressing these initiatives, the Commonwealth of Virginia and its Federal partners will be better able to assist the public and to break the damage-repair-damage cycle through effective mitigation measures.

Signed:

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Michael M. Cline  
State Coordinating Officer

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Louis Botta  
Federal Coordinating Officer

